



PHOTO: KAI WIDELL, SYKE.

The role of the Finnish Environment Institute under the Ministry of Agriculture and Forestry



Finnish Environment Institute (Syke) is a research and expert organisation under the Ministry of the Environment.



Syke also carries out tasks related to water resources management under the Ministry of Agriculture and Forestry.



Syke's tasks and responsibilities are laid down in the Act on the Finnish Environment Institute (1069/2009) and the Government Decree on the Finnish Environment Institute (1828/2009).



Syke also carries out reporting tasks required by EU legislation and international agreements and is responsible for environmental monitoring and other official duties.



Syke's vision from our 2021 strategy is sustainability transformation

Syke supports the building of a sustainable society with research, information and services, and focuses on the following:

- Climate change mitigation and adaptation, particularly in related governance, as well as monitoring and assessing the impact of actions taken.
- Promoting the protection, management, and sustainable use of the Baltic Sea, freshwater bodies, and groundwaters. Monitoring the status of the Baltic Sea and inland waters, and the pressures they face. Developing governance and tools related to the bodies of water.
- Promoting and assessing the sustainability of circular economy and bioeconomy, increasing material and energy efficiency.
- Development and impact assessment of the sustainable use of natural resources, searching for new solutions and identifying risks.
- Protecting and restoring biodiversity, promoting sustainable use of nature, maintaining ecosystem services, and promoting well-being through nature-based solutions.
- Generating and sharing knowledge on sustainable land use, built environment, and transport systems. Developing and maintaining information systems for the built environment that add value for customers. Assessing and developing policies and measures to help supply meet demand.

Syke supports the sustainability transformation of the systems affecting the above focus areas through systemic analysis and co-creation.

Syke's key tasks in water resources management

Syke's key task under the Ministry of Agriculture and Forestry is to provide services to ensure the sustainability of water resources and the functioning of society.

In accordance with legislation, Syke acts as a statistical authority as defined in the Statistics Act (280/2004), producing hydrological statistics. Syke is also responsible for the expert services required for flood risk management, in accordance with the Flood Risk Management Act (620/2010). The Government Decree on Flood Risk Management (659/2010) defines Syke's tasks as follows:

1. Assists the Centres for Economic Development, Transport and the Environment (ELY Centres) and the Ministry of Agriculture and Forestry in carrying out the tasks under the Flood Risk Management Act and in providing the necessary guidance and information, and develops the methods required for flood risk management;
2. Maintains and develops hydrological monitoring and the water situation and flood warning service in cooperation with the Finnish Meteorological Institute and ELY Centres;

3. In responsible for reporting to the European Commission as required by European Union legislation;
4. Carries out other tasks assigned by the Ministry of Agriculture and Forestry.

Finland's hydrological service and Flood Centre

Finland's hydrological service and the Flood Centre serve as a source of information for authorities, citizens, hydropower plants, insurance companies, researchers, and international reporting. For example, the water level and flow rate regulation tasks of the ELY Centres and major hydro-electric power companies depend on the hydrological service of Syke. In particular, the hydrological service supports flood and drought risk management, drainage basin level and land use planning.

The Flood Centre is a joint service of Syke and the Finnish Meteorological Institute. The Flood Centre works in close cooperation with the ELY Centres and rescue departments, among others. Services are provided to the authorities as well as the people living or operating

in the flood area. The Flood Centre makes forecasts, alerts about floods, and maintains a continuous flood situation report on the Waterinfo.fi website.

Syke's water situation service produces information on the water situation and flood warnings. Real-time information is provided on water levels and flow rates of lakes and rivers, levels of groundwater, and values of water equivalent of snow.

The hydrological service combines hydrological monitoring with a watershed simulation and forecasting system

Hydrological monitoring provides data that functions as the starting point for other water management activities. Since 2017, hydrological monitoring has been organised according to a purchaser-provider split. The national hydrological service organisation is Syke, which orders hydrological data from the ELY Centre of South Ostrobothnia. Syke is responsible for the information systems, national services, quality control and the development of the monitoring programme.

Syke's Watershed simulation and forecasting system (WSFS and VEMALA) is a modelling infrastructure, a calculation model covering all of Finland's hydrology, and the loading, transport, and retention of nutrients. The WSFS is central feature of the water situation service, as it provides the information base for forecasting and for the operation of the Flood Centre. It also serves as a general instrument for the ELY Centres in water resources matters. One of the most important components is the runoff model, which describes the hydrological cycle from rainfall to runoff using meteorological data. Another key component, VEMALA, models water quality and can describe the transporting of nutrients from small streams and lakes all the way to the sea.

Sustainable water services and sewerage

Syke carries out research, development, and expert tasks in water services, for example in the fields of stormwater management, urban water issues, wastewater treatment, and the sustainable use of groundwater bodies and soil. A key task in water services is to maintain cooperation across organisational boundaries and ensure preparedness for emergency situations to protect the water supply in all situations.

Information systems supporting water resources management

Syke is responsible for the maintaining, developing, and offering user support for nearly all national water-

related information systems. The production of the information-based content is shared between different actors at national level.

Syke's most recent task is to develop data management **solutions for the Drinking Water Directive** in cooperation with various organisations and actors.

The Waterinfo.fi website, developed and maintained by Syke, contains real-time and up-to-date information on the water situation (including flood warnings) throughout Finland. The website is also a source of researched information on water issues, serving both citizens and experts of various fields. The information content is provided by Syke, the Finnish Meteorological Institute and the Flood Centre as a joint service and in cooperation with expert organisations in the water sector. Syke is also responsible for reporting on water resources to the EU and internationally.

Other tasks related to water resources

Syke contributes extensively to the implementation of the national Water Resources Management Strategy through research and development projects related to water resources and provides a wide range of support and expert services to policy makers. Syke also provides expert support in international activities and is actively involved in promoting water diplomacy and cooperation on transboundary water issues, among other things. Syke's experts provide information on built water and fish passages, water resources management in agriculture and forestry, as well as watershed vision cooperation locally and regionally.

Supporting the planning and implementation of climate change adaptation policies

To support adaptation to climate change, Syke provides expert and research services to the Ministry of Agriculture and Forestry, regional administrations, and municipalities. We act in the secretariat of the National Climate Change Adaptation Plan 2030 and support the development of adaptation monitoring systems and indicators. Syke carries out impact assessments and develops the application of international climate scenarios in different regions of Finland. Syke also promotes the accessibility of adaptation information, particularly through the Climateguide.fi portal, and conducts scientific research related to the Ministry of Agriculture and Forestry's field of administration.

Syke in figures 2022

88

expert hearings in parliament

207

statements

53

expert blog posts

1 321

participants at Syke's trainings

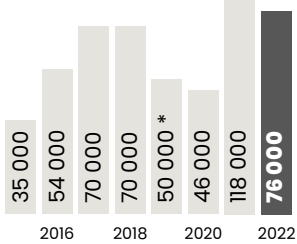
35 800

Twitter followers (10 accounts)

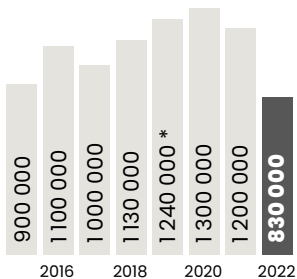
24 500

Facebook followers (5 accounts)

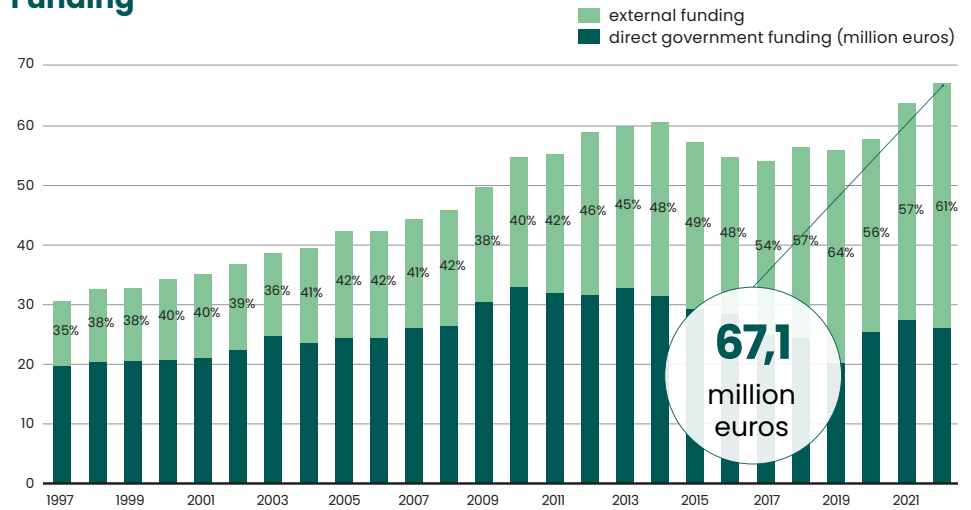
Downloads of spatial datasets



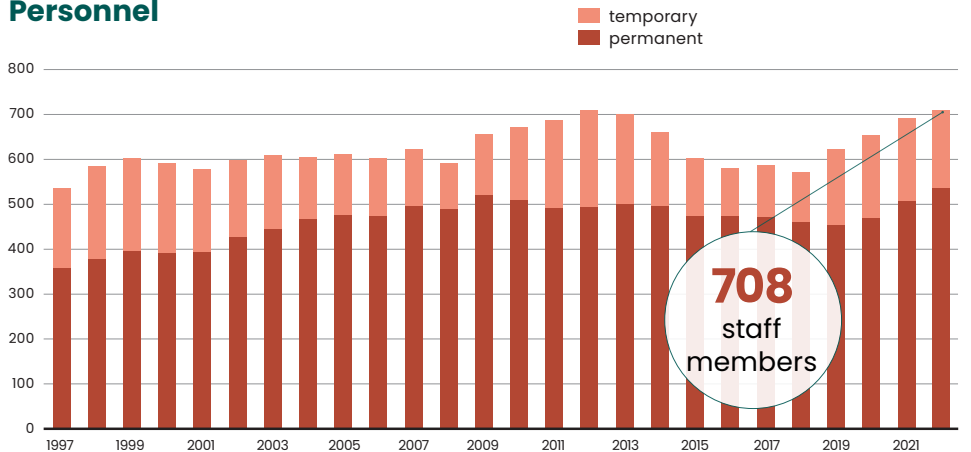
Downloads of syke.fi



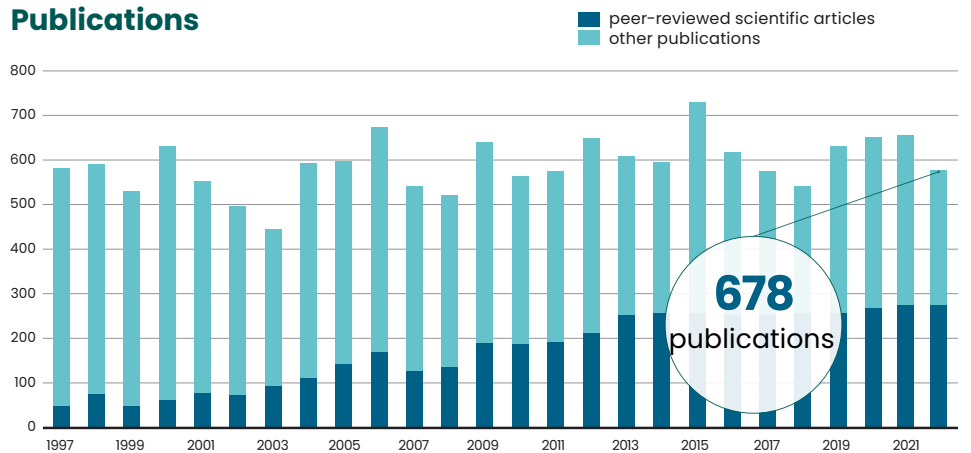
Funding



Personnel



Publications



* 2019 The decrease in download volumes is due to the fact that instead of downloadable materials, customers have switched to using constantly updated materials via the interface service.

